

## WHAT IS CLAIMED IS

1. A method for improving mixed raster compression segmentation, comprising the steps of:

- (a) inputting a multi-bit monochrome signal which codes both weak, strong and direction of a selector signal;
- (b) partitioning the selector signal into a plurality of uniform blocks;
- (c) performing two dimensional filtering over each block; and
- (d) replacing the original weak selector signal with the filtered results.

2. The method according to Claim 1 for improving mixed raster compression segmentation, further comprising the step of:

- (e) subtracting a bias from the multi-bit monochrome signal resulting in a thresholded monochrome signaled being a signed number.

3. The method according to Claim 2 for improving mixed raster compression segmentation, further comprising the step of:

- (f) determining if the signed number equals a -1 or +1 wherein the output signal is considered to be a weak selector signal.

4. The method according to Claim 2 for improving mixed raster compression segmentation, further comprising the step of:

- (f) determining if the signed number is less than a -1 then output signal is considered to be a strong background signal.

5. The method according to Claim 2 for improving mixed raster compression segmentation, further comprising the step of:

- (f) determining if the signed number is greater than a +1 the output signal is considered to be a strong foreground signal.

6. The method according to Claim 1 wherein the multi-bit monochrome signal is an 8-bit raw gray selector output signal.

7. The method according to Claim 1 wherein performing two dimensional filtering over each block includes four passes over a rectangular temporary storage area representing the size of a JPEG minimum coded unit block for the Background and Foreground planes.

8. The method according to Claim 7 wherein performing two dimensional filtering over each block includes a first pass wherein input signal pixels are processed from left to right into the rectangular temporary storage area where each row is independent and whenever there are strong edges, the corresponding rectangular temporary storage area location is initialized to  $+/-K$ , otherwise, for weak edges, rectangular temporary storage area is written with the previous rectangular temporary storage area value where its magnitude has been reduced by 1.

9. The method according to Claim 8 wherein performing two dimensional filtering over each block includes a second pass, each row of rectangular temporary storage area is traversed from right to left wherein the magnitude reduced previous value is compared with the current value and placing the value with the largest magnitude in the current location.

10. The method according to Claim 8 wherein performing two dimensional filtering over each block includes a third pass, each row of rectangular temporary storage area is traversed from top to bottom wherein the magnitude reduced previous value is compared with the current value; and placing the value with the largest magnitude in the current location.

11. The method according to Claim 8 wherein performing two dimensional filtering over each block includes a fourth pass, each row of rectangular temporary storage area is traversed from bottom to top wherein the magnitude reduced previous value is compared with the current value; and placing the value with the largest magnitude in the current location.

12. The method according to Claim 8 wherein performing two dimensional filtering over each block includes a final pass the final smoothed result is produced by examining rectangular temporary storage area. If the rectangular temporary storage area value has the max magnitude (+K or -K) the value used is the original strong edge value otherwise the code for weak foreground or background (128+1 or 128-1) is used depending on whether the rectangular temporary storage area value is positive or negative.

13. A system for improving mixed raster compression segmentation, comprising:

- (a) means for inputting a multi-bit monochrome signal which codes both weak, strong and direction of a selector signal;
- (b) means for partitioning the selector signal into a plurality of uniform blocks;
- (c) means for performing two dimensional filtering over each block; and
- (d) means for replacing the original weak selector signal with the filtered results.

14. The system according to Claim 13 for improving mixed raster compression segmentation, further comprising:

- (e) means for subtracting a bias from the multi-bit monochrome signal resulting in a thresholded monochrome signaled being a signed number.

15. The system according to Claim 13 for improving mixed raster compression segmentation, further comprising:

(f) means for determining if the signed number equals a -1 or +1 wherein the output signal is considered to be a weak selector signal.

16. The system according to Claim 13 for improving mixed raster compression segmentation, further comprising the step of

(f) means for determining if the signed number is less than a -1 then output signal is considered to be a strong background signal.

17. The system according to Claim 13 for improving mixed raster compression segmentation, further comprising the step of:

(f) determining if the signed number is greater than a +1 the output signal is considered to be a strong foreground signal.

18. The system according to Claim 13 wherein performing two dimensional filtering over each block includes four passes over a rectangular temporary storage area representing the size of a JPEG minimum coded unit block for the Background and Foreground planes.

19. The system according to Claim 13 wherein performing two dimensional filtering over each block includes a first pass wherein input signal pixels are processed from a first direction to a second opposing direction into the rectangular temporary storage area where each row is independent and whenever there are strong edges, the corresponding rectangular temporary storage area location is initialized to +/-K, otherwise, for weak edges, rectangular temporary storage area is written with the previous rectangular temporary storage area value where its magnitude has been reduced by 1.

20. The system according to Claim 13 wherein performing two dimensional filtering over each block includes a second pass, each row of rectangular temporary storage area is traversed from the second direction to the opposing first direction wherein the magnitude reduced previous value is compared with the current value and placing the value with the largest magnitude in the current location.

21. The system according to Claim 13 wherein performing two dimensional filtering over each block includes a third pass, each row of rectangular temporary storage area is traversed from a third direction to a opposing fourth direction wherein the magnitude reduced previous value is compared with the current value; and placing the value with the largest magnitude in the current location.

22. The system according to Claim 13 wherein performing two dimensional filtering over each block includes a fourth pass, each row of rectangular temporary storage area is traversed from the fourth direction to the opposing third direction wherein the magnitude reduced previous value is compared with the current value; and placing the value with the largest magnitude in the current location.